

**REMARKS**

Claims 1, 3-8, 10-15, 17 and 18 stand rejected under 35 U.S.C. § 102 as being anticipated by Hasegawa et al. '536 ("Hasegawa"), and claims 2, 9 and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hasegawa in view of Lee et al. '889 ("Lee"). Claims 1 and 8 are independent. Solely in order to expedite issuance of the present application, claims 1 and 8 have been amended, without prejudice/disclaimer to the subject matter embodied thereby, to include the feature of claims 2 and 9, respectively. These rejections are respectfully traversed for the following reasons.

Each of claims 1 and 8, as amended, recite in pertinent part, a ferroelectric film "made of a single crystal or a single domain." The Examiner admits that Hasegawa does not disclose this feature and therefore attempts to modify the alleged ferroelectric film of Hasegawa with the teachings of Lee to reach the claimed invention. However, it is respectfully submitted that the proposed combination is improper because the Examiner has not provided the requisite *objective* evidence *from the prior art* that "suggests the desirability" of the proposed combination. The Examiner is directed to MPEP § 2143.03 under the subsection entitled "Fact that References Can Be Combined or Modified is Not Sufficient to Establish *Prima Facie* Obviousness", which sets forth the applicable standard:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. (*In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990)).

In the instant case, even assuming *arguendo* that Hasegawa can be modified by Lee, it is submitted that the "mere fact that [Hasegawa and Lee] can be combined ... does not render the resultant combination obvious" because nowhere does the prior art "suggest the desirability of the combination" as set forth by the Examiner.

The Examiner merely alleges that the modification would have been obvious “because it would have created a memory cell with good electromechanical and electrical properties as taught by Lee.” However, Lee does not attribute the “good electromechanical and electrical properties” to using a *single crystal* wafer *per se*, but rather, Lee suggests a particular *composition* for such a wafer depicted by formula I at col. 1, line 48 thereof. In other words, Lee does not “suggest the desirability” of using “single crystal” wafers. Instead, *if a single crystal wafer is used in a device*, Lee at best may “suggest the desirability” of using one having the composition described by the aforementioned formula I. In the instant case, the ferroelectric film of Hasegawa is not a single crystal wafer to begin with but rather is a ferroelectric film forming part of a capacitor. Lee does not provide any motivation or rationale for modifying the non-single crystal ferroelectric film forming part of a capacitor disclosed by Hasegawa to a single-crystal wafer.

Moreover, Lee is directed to ferroelectric single crystal *wafers* whereby ferroelectric powder is placed in a furnace at 1500°C and 100 psi for 20 hours to melt the powder and grow the single crystals (*see* col. 3, lines 24-34 of Lee); whereas Hasegawa is related to a capacitor located on a silicon substrate (e.g., performing a LOCOS process) which is not amenable to such a process for growing a single crystal wafer as disclosed by Lee. That is, Lee is directed to ferroelectric single crystal wafers and is NOT analogous to ferroelectric films for capacitors, so that the teachings related to the ferroelectric *wafer* disclosed by Lee are NOT relevant to the *capacitor* ferroelectric film of Hasegawa. Lee does not suggest applying the teachings related to a ferroelectric *wafer* to a capacitor. Indeed, in contrast to capacitor ferroelectric films, the teachings of Lee are expressly directed to devices such as “ultrasonicators, actuators, microphones, surface acoustic wave(SAW) elements, optical modulators and optical switches” (*see* col. 1, lines 15-18 of Lee) while Lee is completely silent as to the structurally/functionally distinct *capacitor* ferroelectric films.

The Examiner is directed to MPEP § 2143.01 under the subsection entitled "Fact that the Claimed Invention is Within the Capabilities of One of Ordinary Skill in the Art is Not Sufficient by Itself to Establish *Prima Facie* Obviousness", which sets forth the applicable standard:

A statement that modifications of the prior art to meet the claimed invention would have been [obvious] because the references relied upon teach that all aspects of the claimed invention were *individually* known in the art is *not* sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. (citing *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993)).

In the instant case, even assuming *arguendo* that Hasegawa and Lee "teach that all aspects of the claimed invention [are] individually known in the art", it is submitted that such a conclusion "is not sufficient to establish a *prima facie* case of obviousness" because there is no *objective* reason on the record to combine the teachings of the cited prior art. Only Applicants have considered and recognized the damaged regions which can result in a capacitive film, and conceived of a *combination* of a capacitor ferroelectric film which can obviate such damage; whereas Hasegawa is directed to a capacitor ferroelectric film and Lee merely discloses a ferroelectric wafer which is structurally and functionally unrelated to a capacitor ferroelectric film so as to leave the combination without motivation/rationale from the prior art. As mentioned above, the ferroelectric wafer is related to devices such as "ultrasonicators, actuators, microphones, surface acoustic wave(SAW) elements, optical modulators and optical switches" (*see* col. 1, lines 15-18 of Lee) rather than capacitor ferroelectric films.

At best, the Examiner has attempted to show only that the elements (i.e., *capacitor* ferroelectric film made of a single crystal or a single domain) of the claimed invention are *individually* known without providing a *prima facie* showing of obviousness that the *combination* of elements recited in the claims is known or suggested in the art. For all the foregoing reasons, it is submitted that the proposed combination of Hasegawa and Lee is improper.

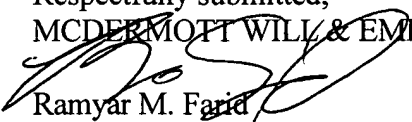
Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 1 and 8 are patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

Based on the foregoing, it is respectfully submitted that all pending claims are patentable over the cited prior art. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. § 102/103 be withdrawn.

### **CONCLUSION**

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below. To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,  
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